

Title: The Coming of Census 2000

Brief Overview:

In this learning unit, students will plan and conduct a census survey. In addition, students will use their collected data to make graphic representations.

Links to NCTM 2000 Standards:

- **Mathematics as Problem Solving, Reasoning and Proof, Communication, Connections, and Representation**

These five process standards are threads that integrate throughout the unit, although they may not be specifically addressed in the unit. They emphasize the need to help students develop the processes that are the major means for doing mathematics, thinking about mathematics, understanding mathematics, and communicating mathematics.

Students will demonstrate their ability to solve problems relating to their collected data. They will demonstrate their ability to communicate mathematically by conducting a survey with other students and by completing a writing assignment which includes the graphic presentation of data. Students also will demonstrate their ability to reason mathematically by justifying their survey results. Last of all, they will demonstrate their ability to interpret and graph data as it relates to census surveys.

- **Number and Operation**

Students will demonstrate their ability to use computational skills dealing with whole numbers, fractions, decimals, and percentages. In addition, they will apply ratios and proportions to specific situations.

- **Data Analysis, Statistics and Probability**

Students will demonstrate their ability to collect, organize, analyze, and display data which they have collected in written and graphic form.

Grade/Level:

Grades 6 - 8

Duration/Length:

The unit is to be performed over three to five class periods.

Prerequisite Knowledge:

Students should have working knowledge of the following skills:

- Constructing frequency tables
- Graphing histograms and circle graphs
- Converting between fractions, decimals, and percents
- Writing ratios and proportions
- Writing a paragraph using correct grammar and mathematical justifications

Student Outcomes:

Students will:

- work in cooperative groups.
- plan a census survey for use in class.
- collect data from other students.
- construct tables to analyze the data.
- convert the data to fractions, decimals and percents when needed.
- draw histograms and circle graphs.
- write an essay analyzing the data.

Materials/Resources/Printed Materials:

- Survey forms
- Grid paper
- Crayons or colored pencils
- Rulers
- Circle graph figures
- Pencils
- Frequency table forms
- Activity sheets
- Optional: calculator, overhead projector

Development/Procedures:

• DAY 1:

The teacher will introduce the topic of the Census 2000 by discussing surveys. The teacher will ask students to discuss every day topics of general interest in which they regularly make distinctions, divisions, choice, and preferences based on the process of categorization (for example, what are your favorite foods at lunch; favorite music, movie star, clothing,...). The students will read and complete ACTIVITY 1. The teacher will issue home assignments dealing with the information presented. The teacher will then lead a discussion on the major categories used in the Census and how they are measured.

• DAY 2:

The teacher will review with the students the categories of questions they will use to survey each other:

- Gender
- Age
- Length of time lived at residence
- Homeowner or rental
- Post high school aspirations
- Number of people in household

Students will be paired with each other and given a copy of a SURVEY SHEET. They will take turns interviewing each other. Meanwhile the teacher will use an overhead projector or create a CUMULATIVE SURVEY DATA CHART on the blackboard. When the students have finished administering their surveys, they will fill in the CUMULATIVE SURVEY DATA CHART (with hatch marks). Students will then be given a copy of the CUMULATIVE SURVEY DATA CHART and should fill this in with the class data. The teacher will issue a home assignment in which students will survey the number of people in their household and their age using the HOME SURVEY: HOUSEHOLD COMPOSITION. Students will fill out just COLUMN B.

In class, the teacher will create a large chart on the blackboard that looks like the HOME SURVEY - HOUSEHOLD COMPOSITION. Then the teacher will go around and have each student fill in his or her data with hatch marks in COLUMN C. The teacher will then total this for the class, and each student will write the numeric total results in COLUMN C on his or her individual HOME SURVEY - HOUSEHOLD COMPOSITION chart.

- **DAYS 3 and 4:**

The students will make three graphs of the data they have collected:

Histogram of household age

Circle graph of household age (for 8th grade or advanced 7th grade)

Histogram of length of time at residence

Performance Assessment:

To check the students' progress, the following rubric will be used to check the graphs:

- 4 points - all of the following must be included -
 - title, labels for the x- and y-axis, appropriate calibration of the axes,
 - correct calculations
- 3 points - three of the above
- 2 points - two of the above
- 1 point - one of the above

Extension/Follow Up:

The following activities can be used as follow-up assignments for this learning unit:

- Teachers and students can contact the following sources for more information:
 - The Census Bureau Website: www.census.gov
 - Census Education Project: Director, Bureau of Census, U.S. Department of Commerce, Washington, D.C. 20233
- Write an essay on the pros and cons of conducting a national census every ten years
- Construct bulletin boards
- Research your community - past and present
- Contact Maryland Historical Society and the Regional Planning Council
- Plan connections with social studies department
- Develop slogan and spirit for participating in Census 2000
- In particular, through the Census Bureau Website, or other sources of local or regional information, obtain the census data for your state, since data was first collected.
 - 1) Make a line graph, by ten year intervals, of your state's total population through 1990. Be sure to set up the vertical and horizontal axes appropriately.
 - 2) Predict the Census 2000 data point for your state.
 - 3) Describe the shape of the line graph - flat, increasing, decreasing, positive, and negative slopes.
 - 4) What can account for the differing slopes of the line graph in terms of your state's history and national history?

Authors:

Kathalene Carey
Northeast Middle School
Baltimore City, MD

David Kandel
Waldorf School of Baltimore
Baltimore City, MD

Mary McKesson
Northeast Middle School
Baltimore City, MD

ACTIVITY 1: THE COMING OF CENSUS 2000

After the American Revolution, the first census was taken in 1790. During that period of time, there were 3,929,200 people in the United States. These people lived in the eastern part of the country on farms or in small towns.

In the year 2000, another census will be taken by the United States government. This survey will be called Census 2000. Educational material for communities will be distributed by March or April 2000. The purpose of circulating this educational material about this census is to emphasize the importance of families being counted.

Census 2000 is very important to the people of the United States. Federal, state, local, and tribal governments use census population and housing data for the allocation of funds. The selection of new school sites by many school boards are based on census data. Title 1 funding is allocated where economical disadvantaged children live. Grants to school districts can be given for having children with limited English proficiency. In the federal government, seats in the House of Representatives are given according to the census population of each state. Also, the census data can supply information about people and their economy.

In essence, the coming of Census 2000 is important to communities. This census will be used as an eligibility guideline for funding and advancement for communities. If families are not counted, needed funds will not be issued to their communities. In conclusion, families should stand up and be counted!

Using the reading selection, "The Coming of Census 2000", answer the questions below.

1. In what year was the first census taken?
2. When will educational material relating to Census 2000 be distributed to the communities ?
3. Write a paragraph about why Census 2000 is important to the people of the United States.

The teacher will then review the major types of questions asked on the Census:

- Age •Gender •Race •Household composition •Dwelling Type
- Automobiles •Level of education •Employment history and experiences
- Ancestry •Language •Health

Why are these questions important to the government? What can you learn from them? How are they measured? What is the difference between discrete and continuous data? What is the difference between quantitative and qualitative data? In particular three will be focused on to give students a better sense of how they are measured.

Age - this is broken down into numerically related categories, easy to measure and easy to categorize.

Gender - a dichotomous measure - male and female - of no numerical relationship to each other.

Race - an ever evolving set of categories, defined by who and why - ambiguous and controversial classification.

HOME SURVEY--HOUSEHOLD COMPOSITION

*Complete column B only with the assistance of your parents. Do not forget to include yourself.

A	B	C
AGE	NUMBER	TOTAL
0 - 5		
6 - 20		
21 - 50		
51 - 64		
65 AND OVER		
TOTAL POPULATION		

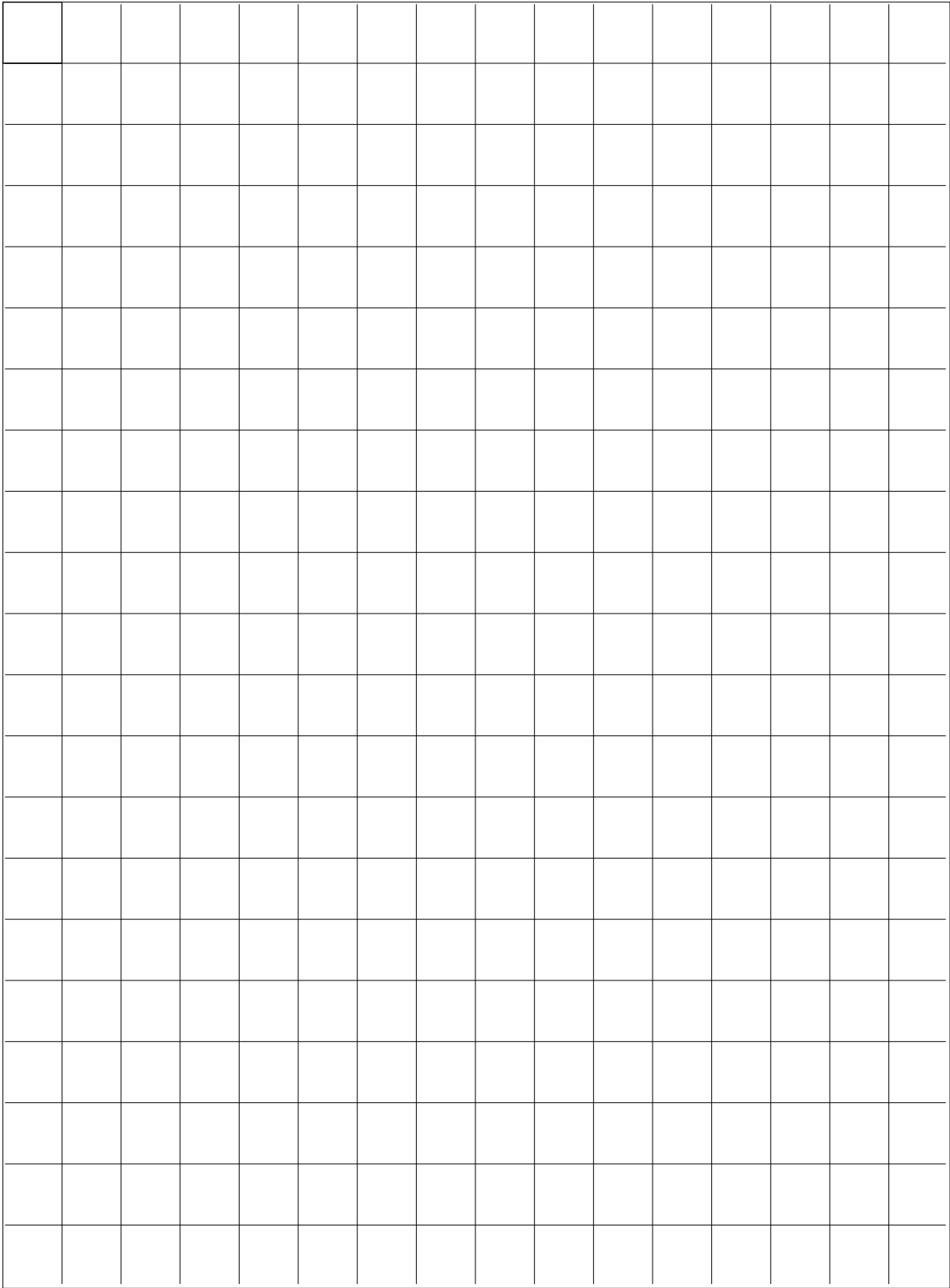
CENSUS SURVEY

Answer the questions below.

- 1) What is your name? _____
- 2) How old are you? _____
- 3) What is your gender? _____
- 4) Is the house or apartment where you are now living owned or rented by your parents or guardians? _____
- 5) How many years have you been living at your current residence? _____
- 6) When you finish high school, what are your career plans? _____

LENGTH OF RESIDENCE

NUMBER OF YEARS	TALLY MARKS
0-1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	



CIRCLE GRAPH - HOUSEHOLD AGES

A	B	C	D	E
AGE	TOTAL	PERCENT	ANGLE	CUM ANGLE
0 - 5				
6 - 20				
21 - 50				
51 - 64				
65 AND OVER				
TOTAL POPULATION				

